

C_{4h}^2
 $P4_2/m$

No. 84

 $P4_2/m$
Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (3); (5)

General position

 Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

8	<i>k</i>	1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) $\bar{y}, x, z + \frac{1}{2}$	(4) $y, \bar{x}, z + \frac{1}{2}$
			(5) $\bar{x}, \bar{y}, \bar{z}$	(6) x, y, \bar{z}	(7) $y, \bar{x}, \bar{z} + \frac{1}{2}$	(8) $\bar{y}, x, \bar{z} + \frac{1}{2}$

I Maximal translationengleiche subgroups

[2] $P\bar{4}$ (81)	1; 2; 7; 8	0, 0, 1/4
[2] $P4_2$ (77)	1; 2; 3; 4	
[2] $P2/m$ (10, $P112/m$)	1; 2; 5; 6	

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$		
$C4_2/e$ (86, $P4_2/n$)	$\langle 2; 3; 5 + (0, 1, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$ 0, 1/2, 0
$C4_2/e$ (86, $P4_2/n$)	$\langle 2 + (1, 1, 0); (3; 5) + (1, 0, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$ 1/2, 0, 0
$C4_2/m$ (84, $P4_2/m$)	$\langle 2; 3; 5 \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$
$C4_2/m$ (84, $P4_2/m$)	$\langle (2; 5) + (1, 1, 0); 3 + (1, 0, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$ 1/2, 1/2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$		
$P4_2/m$ (84)	$\langle 2; 5; 3 + (0, 0, 1) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$
$P4_2/m$ (84)	$\langle 2; 3 + (0, 0, 1); 5 + (0, 0, 2) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$ 0, 0, 1
$P4_2/m$ (84)	$\langle 2; 3 + (0, 0, 1); 5 + (0, 0, 4) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$ 0, 0, 2

• Series of maximal isomorphic subgroups

[p] $\mathbf{c}' = p\mathbf{c}$		
$P4_2/m$ (84)	$\langle 2; 3 + (0, 0, \frac{p}{2} - \frac{1}{2}); 5 + (0, 0, 2u) \rangle$ $p > 2; 0 \leq u < p$ p conjugate subgroups for the prime p	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$ 0, 0, u
[p^2] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$		
$P4_2/m$ (84)	$\langle (2; 5) + (2u, 2v, 0); 3 + (u + v, -u + v, 0) \rangle$ $p > 2; 0 \leq u < p; 0 \leq v < p$ p^2 conjugate subgroups for prime $p \equiv 3 \pmod{4}$	$p\mathbf{a}, p\mathbf{b}, \mathbf{c}$ $u, v, 0$
[$p = q^2 + r^2$] $\mathbf{a}' = q\mathbf{a} - r\mathbf{b}, \mathbf{b}' = r\mathbf{a} + q\mathbf{b}$		
$P4_2/m$ (84)	$\langle (2; 5) + (u, u, 0); 3 + (u, 0, 0) \rangle$ $q > 0; r > 0; p > 4; 0 \leq u < p$ p conjugate subgroups for prime $p \equiv 1 \pmod{4}$	$q\mathbf{a} - r\mathbf{b}, r\mathbf{a} + q\mathbf{b}, \mathbf{c}$ $u, 0, 0$

I Minimal translationengleiche supergroups

 [2] $P4_2/mmc$ (131); [2] $P4_2/mcm$ (132); [2] $P4_2/mbc$ (135); [2] $P4_2/mnm$ (136)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [2] $I4/m$ (87)

• Decreased unit cell

 [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $P4/m$ (83)